

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/38925

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 F16L37/088

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 F16L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 887 911 A (KARGULA CHRISTOPHER J) 30 March 1999 (1999-03-30) abstract figures 1,3,5 column 2, line 9 - line 15 column 3, line 41 - line 49 column 4, line 33 - line 38 claims 1,2,17	1-7
A	US 6 347 815 B1 (KARGULA CHRISTOPHER J ET AL) 19 February 2002 (2002-02-19) column 2, line 36 - line 45	1,6
A	US 6 390 511 B1 (KARGULA CHRISTOPHER J) 21 May 2002 (2002-05-21) column 2, line 26 - line 56	1,6
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
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- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
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Date of the actual completion of the international search

19 August 2004

Date of mailing of the international search report

30/08/2004

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 5 730 475 A (KARGULA CHRISTOPHER J)  24 March 1998 (1998-03-24)  abstract  figure 2</p> <p>-----</p>	1,6

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Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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